



UNIVERSITY OF SILESIA  
IN KATOWICE

# Faculty of Science and Technology



# University of Silesia in Katowice

## Key Facts



### University of Silesia in Katowice – Key Facts

**Founded:** 8 June 1968

**Locations:** The University operates across **four cities** – Katowice, Sosnowiec, Chorzów, and Cieszyn.

**Faculties:** **8 faculties** covering a broad spectrum of scientific and artistic disciplines.

**Doctoral Schools:** The University runs **one integrated** and **one International Environmental Doctoral School** offering training across multiple scientific fields.

**Students and PhD Candidates:**

- approx. **19,000 students**
- approx. **460 doctoral candidates**

**Scientific disciplines:** approx. **25 scientific disciplines** represented across sciences, arts, humanities, and social sciences.

**Study programmes:**

- **96 degree programmes** (including **10 taught in English**)
- **188 specialisations** (including **12 in English**)





# Faculty of Science and Technology

## Faculty in numbers



**Founded in 2019 – Growing across 3 vibrant cities**  
**One faculty, three academic hubs – a single vision for excellence**

**Our community: over 450 dedicated employees**

**•335 academic staff, including:**

- 53 distinguished full professors
- 98 experienced associate professors
- 160 dynamic assistant professors
- 24 talented assistants

**•Professional technical teams and efficient administrative support** ensuring smooth daily operations and high-quality services

[www.us.edu.pl/en](http://www.us.edu.pl/en)

**A thriving community of 1,600 students and PhD candidates**

**6 dynamic research disciplines shaping the future**

**12 innovative degree programs designed for tomorrow's challenges**



# Faculty of Science and Technology Mission

The mission of the Faculty of Science and Technology is to develop knowledge, create new technologies as well as to adapt technological innovations for sustainable development and broader social needs.

The education of our students is our highest priority. Our Faculty combines top-notch teaching with world-class research conducted at six disciplinary institutes.





# Faculty of Science and Technology Structure

## INSTITUTES

- Institute of Chemistry
- August Chełkowski Institute of Physics
- Institute of Computer Science
- Institute of Materials Engineering
- Institute of Biomedical Engineering
- Institute of Mathematics

## ADMINISTRATION

- Dean's Office
- Office of Evaluation and Institute Services
- Research Infrastructure Office
- Organizational Office
- Project team
- Workshop



# Faculty of Science and Technology Outline

---



## ➔ **Education – fields of study**

Scientific activities – Institutes research profiles

Research – laboratories, scientific projects, patents

Cooperation – business and local environment

Job offers



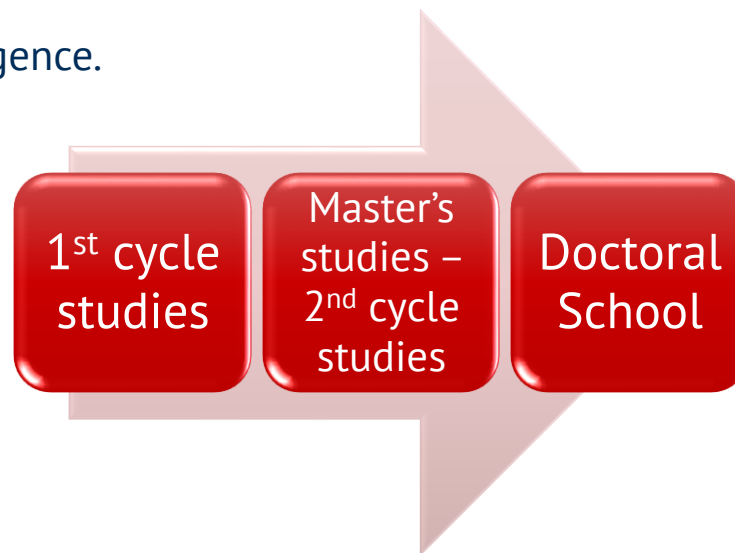
# Faculty of Science and Technology

## Field of studies



The Faculty educates students in the fields of:

- Biophysics,
- Chemistry,
- Chemical Technology,
- Data science and artificial intelligence.
- Computer Science,
- Applied Computer Science,
- Physics,
- Medical Physics,
- Biomedical Engineering,
- Materials Engineering,
- Mathematics,
- Mechatronics,



Postgraduate studies:

- Protection of Classified Information and Information Security Administration,
- Computer Science in Secondary School,

Possibility of continuing studies at the Doctoral School of the University of Silesia

Majors in English:

- Computer Science,
- Physics,
- Materials Science and Engineering,





# Faculty of Science and Technology

## Student development



We provide:

- Personalized learning paths tailored to your ambitions
- Attractive scholarships for top-performing students
- Valuable internships with industry and research partners
- Hands-on experience in innovative scientific teams
- Dynamic student research clubs that inspire creativity and growth

Programs:

- ERASMUS +  
MOST  
T4E



Other initiatives:

- VINCI - dive into science. Interdisciplinary International Summer School
- CC INFINITE - Computing Competences. Innovative learning approach for non-IT students
- Active and Creative Teacher of Mathematics and Computer Science
- Let the MOOC be with you - programming for professional success
- PIK - Program of new interdisciplinary educational elements in doctoral studies in chemistry
- The European Master programme "BIOPHAM (BIO&PHArmaceutical Materials science)"





# Faculty of Science and Technology Outline



Education – fields of study



**Scientific activities – Institutes research profiles**

Research – laboratories, scientific projects, patents

Cooperation – business and local environment

Job offers



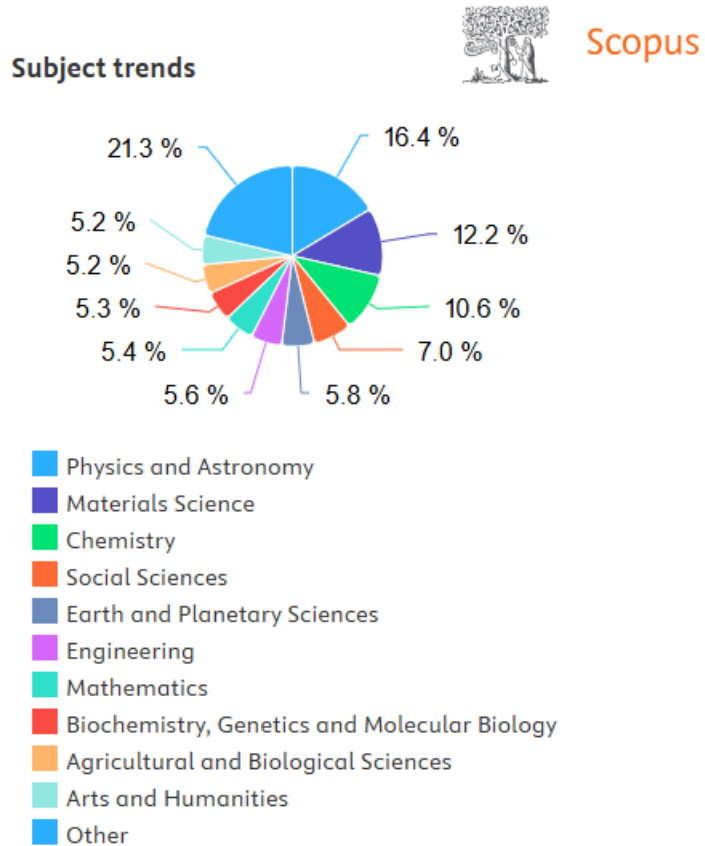
# Faculty of Science and Technology

## General scientific activities

Research activities of the University of Silesia were included in five thematic groups defined as **Priority Research Areas** and covered such issues as:

- protection of health and quality of life,
- modern materials and technologies,
- environmental and climate change,
- humanities for the future,
- fundamental properties of nature.

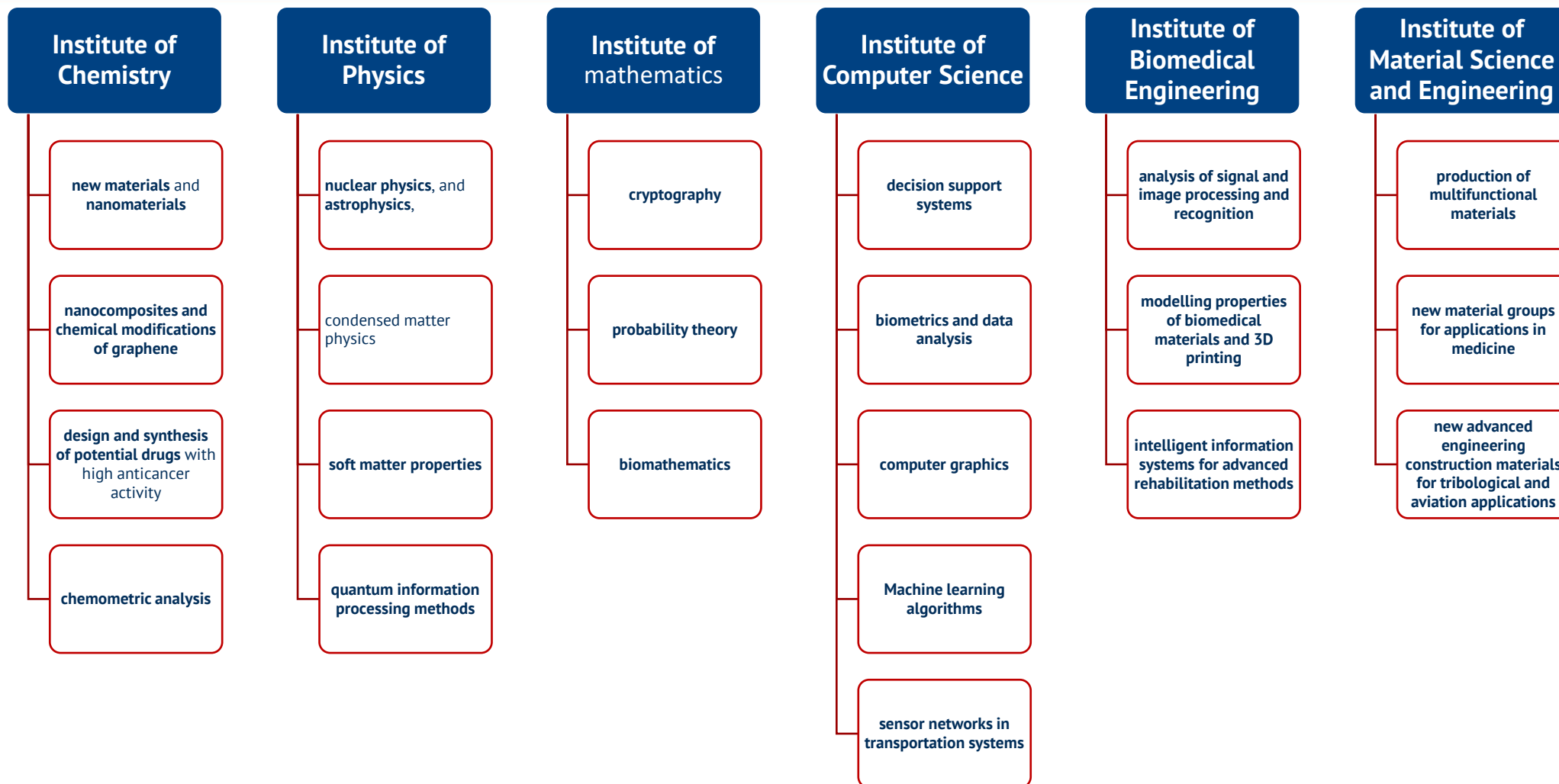
**PRA** support the implementation of the **Sustainable Development Goals** outlined in the 2030 Agenda for Sustainable Development, adopted by United Nations member states.





# Faculty of Science and Technology

## Scientific activities







# Faculty of Science and Technology Outline



Education – fields of study

Scientific activities – Institutes research profiles

➔ **Research – laboratories, scientific projects, patents**

Cooperation – business and local environment



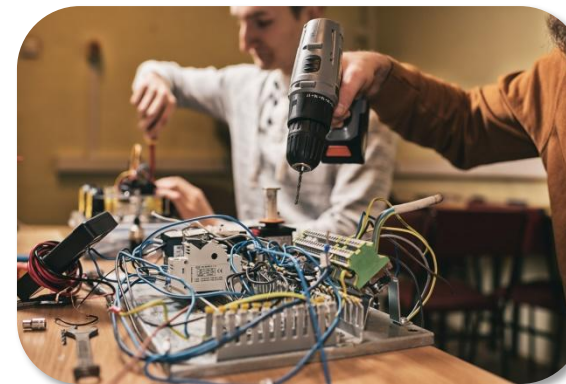
# Faculty of Science and Technology Laboratories

The process of education and scientific research at the Faculty of Science and Technology is supported by the developing and **constantly upgraded research infrastructure**.

Over **100** scientific laboratories (including accredited laboratories), **dozens** of well equipped technology, student and specialized computer laboratories.

Specialized equipment is also used for scientific and expert cooperation with institutions of the scientific sector and representatives of social and economic environment.

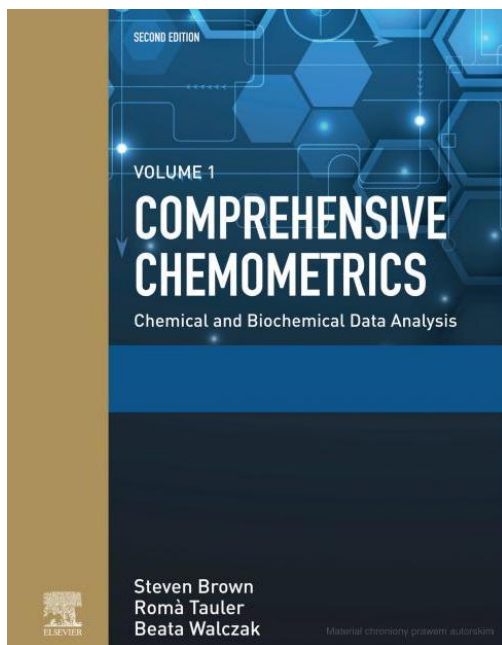
Scientists work in **research teams** or as **individual scientists**.



# Faculty of Science and Technology

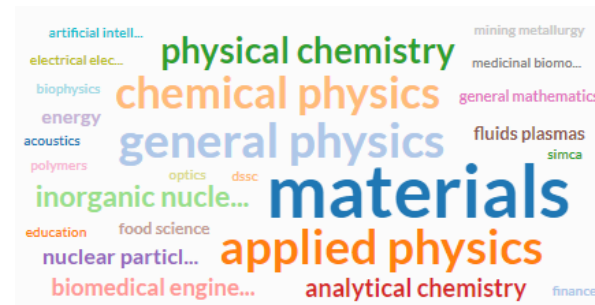
## Research outcome since 2019

- Edited books - 8
- Author's books - 40
- Chapters from monographs - 174

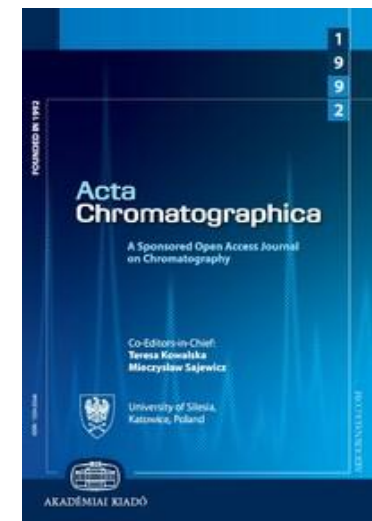


Designed to serve as the first point of reference on the subject, *Comprehensive Chemometrics* presents an integrated summary of the present state of chemical and biochemical data analysis and manipulation. The work covers all major areas ranging from statistics to data acquisition, analysis, and applications.

- Articles from journals - **1754**



Promotion and edition  
of scientific journals





# Faculty of Science and Technology

## Scientific projects

Scientific projects are carried out within the framework of the university research subsidy, as well as within the framework of financing obtained from external institutions.

Our commitment to **quality research** and the outstanding work of the faculty members are reflected in the number of undertaken **scientific projects** and awarded **research grants**.

~250 projects since 2010:

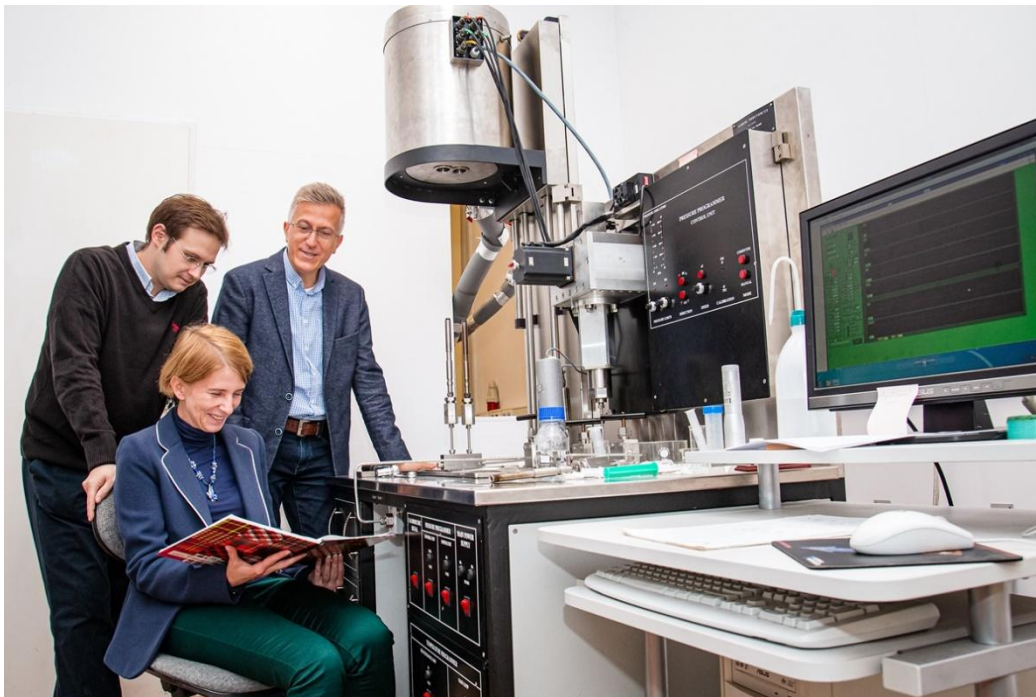
- 190 scientific,
- 2 instrumentation projects,
- 26 educational,
- 14 collaboration with industry,
- 8 scholarships.

60 projects started since 2020 (11 international)



# Faculty of Science and Technology

## Scientific projects



The team consists of Mirośław Chorążewski, PhD, DSc, Associate Professor (the Head); Alexander Lowe, PhD; and Monika Geppert-Rybczyńska, PhD, DSc, Associate Professor.

Research on converting waste energy within the project *Electro-Intrusion. Simultaneous transformation of ambient heat and undesired vibrations into electricity via nanotriboelectrification during non-wetting liquid intrusion-extrusion into-from nanopores.*

The goal of the researchers is to determine the properties of the liquid, which can help in designing and developing sustainable energy storage systems demonstrating the ability to collect and process waste energy such as vibrations and unwanted thermal effects. Converting waste heat and unwanted mechanical vibrations into usable energy may contribute to reducing greenhouse gas emissions and environmental pollution.

The project is financed by the Horizon 2020 Programme within the FET Proactive call for proposals.

<https://us.edu.pl/en/nowatorskie-badania-nad-konwersja-energii-odpadowej-prestizowy-grant-horyzont-2020-fet-proactive/>



# Faculty of Science and Technology

## Scientific projects



### University of Silesia physicists on their cooperation with CERN

*„From the very beginning of our cooperation with CERN, we have actively participated in experiments exploring the nature of the Universe, contributing to the development of high-energy physics. We have created teams of curious and passionate people. There are still many years of intensive but exciting scientific work ahead of us. We look forward to new theories and discoveries, and we are ready for new and unique challenges.”*





# Faculty of Science and Technology

## Scientific projects



The scientists from the Faculty of Science and Technology of the University of Silesia are analysing the influence of various atmospheric conditions on the contactless temperature measurement in people entering the university, which can identify people with an increased body temperature, which might indicate an infection, i.e. people who might potentially suffer from the COVID-19. The results are to assist healthcare in the fight against the pandemic.



Prof. Armand Cholewka and Dr Teresa Kasprzyk



# Faculty of Science and Technology

## Patents and protection rights

The employees, students and young scientists associated with the Faculty contribute to the development of modern and competitive economy through their knowledge, creativity and entrepreneurship.

They are authors and co-authors of over **600** items of industrial property in the form of:

- inventions,
- utility models,
- industrial designs,
- trademarks.

**University of Silesia has been at the forefront of non-technical universities in Poland in terms of the number of patent applications and industrial property rights granted, mainly patents for inventions.**





**Silesia MacroSynthGroup** is the only entity in Poland and Europe researching high-pressure polymerization. The employees of SMSGroup are also the only ones to have devices generating pressure up to 1.5 GPa.



An interdisciplinary research group involved in a wide range of macromolecular chemistry and applied materials chemistry.

<https://smsgroup.us.edu.pl/>



Amorphis Pharma Development Sp. z o.o. was created from a combination of knowledge and achievements of **outstanding scientists** in the field of molecular physics represented by Professor Marian Paluch and PhD. Eng. Justyna Knapik – Kowalczyk, with substantive support and scientific and research base represented by a spin-off company of the University of Silesia (**SPIN-US**), with the involvement of **business practitioners** with experience in the pharmaceutical field (HMC), as well as specialists in the drug development and investment fund (**InnoVenture**).

<https://amorphispharma.com/>



# Faculty of Science and Technology Outline



Education – fields of study

Scientific activities – Institutes research profiles

Research – laboratories, scientific projects, patents

➔ **Cooperation – business and local environment**

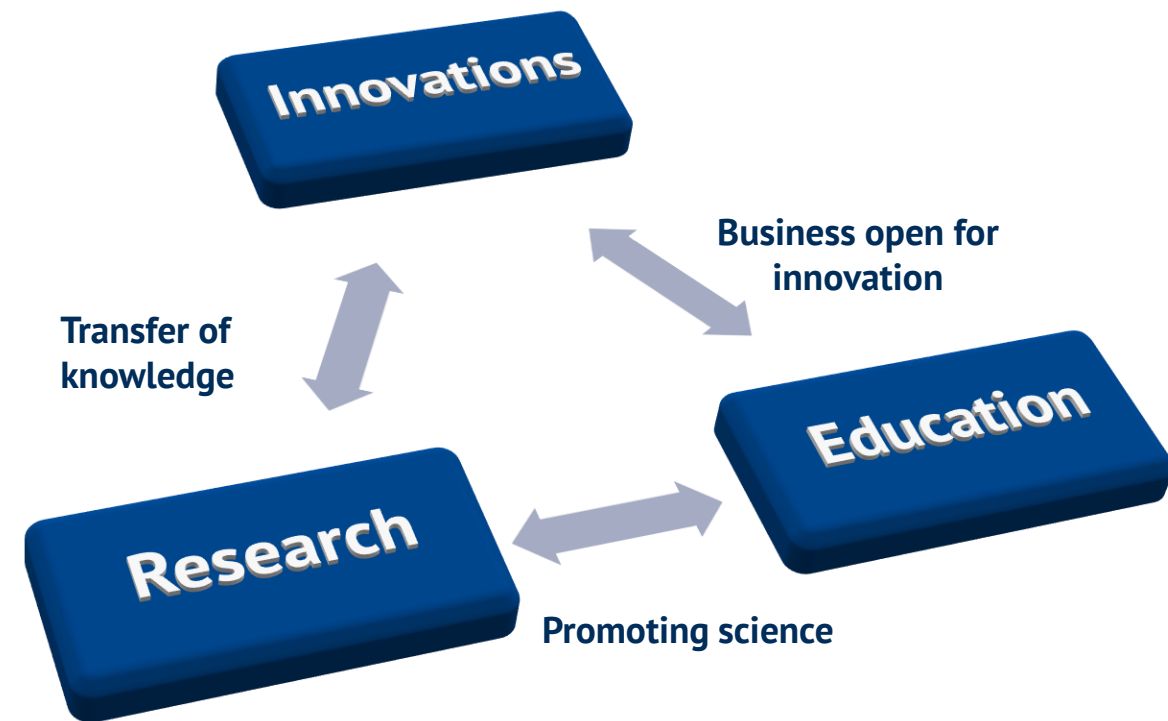
Job offers



The Faculty of Science and Technology offers and undertakes cooperation with institutions and business partners on various levels.

Form of activities:

- execution of joint research and implementation projects,
- commissioned research services,
- intellectual property transfer,
- preparation of opinions on innovation,
- cooperation between experts,
- organisation of joint promotional activities and projects
- creating cooperation networks.



# Faculty of Science and Technology

## Science outreach

We host **scientific events** where families, youth, and the academic community can **explore** interesting phenomena and **learn** about the work of a scientist.

Selected activities:

- $\Pi$  Day,
- Institutes Open Days,
- Scientific conferences,
- Discussion panels,
- Scientific picnics,
- Educational projects for elementary and high school students.

We actively participate in

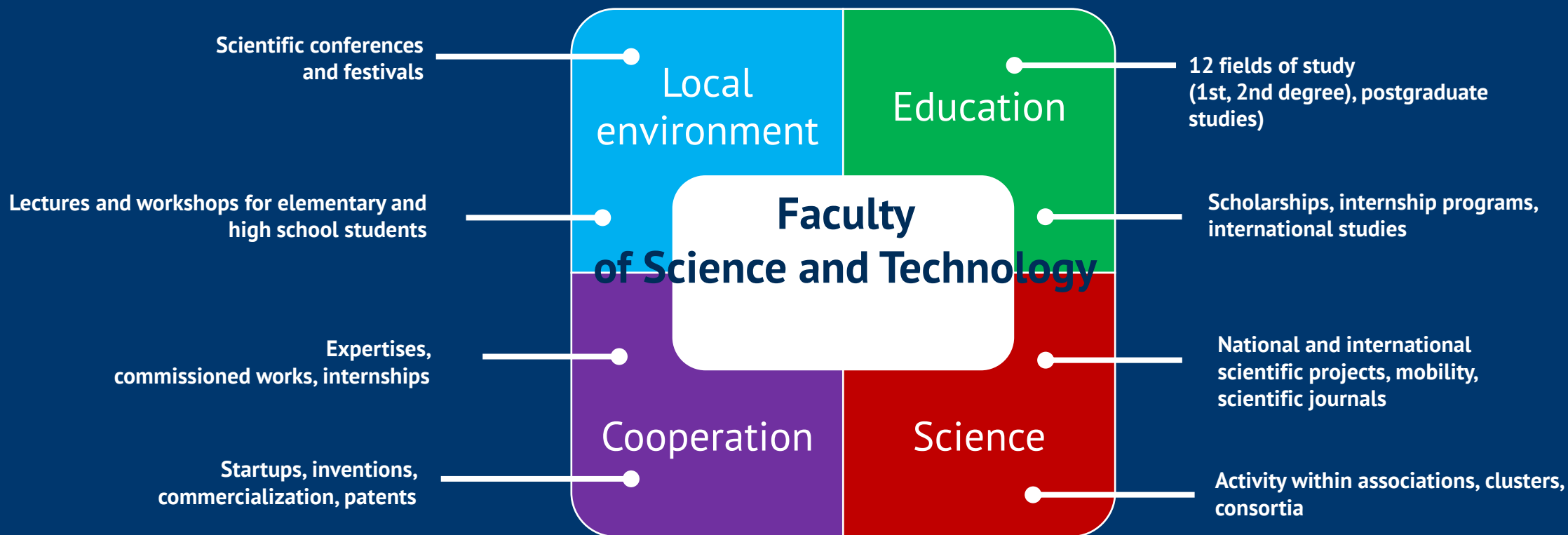
- Silesian Festival of Science
- Festivals around the world







# Faculty of Science and Technology Summary





UNIVERSITY OF SILESIA  
IN KATOWICE

# Faculty of Science and Technology

We are looking for talented scientists from around the world to join the Faculty of Science and Technology and contribute to our reputation for excellence in teaching and research.



## Thank You

